



MANUAL FOR A NEW STUDENT VILLAGE NETWORK USER

University of Turku, IT Management, 2010 - 2011



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READ THIS AT LEAST!

If you don't have interest to read or even browse through this manual, this page contains the most essential things about the Student Village Network connection.

Merely reading these instructions will save you from many mistakes and frustrating moments with the student village network.

- **IT Management only contacts you by e-mail.** All invoices, announcements and information are sent by e-mail. This practice helps keep our prices student-friendly. You should not expect us to contact you by telephone or by post. If the e-mail address given by the connection holder stops working, the connection will be closed (see part 5 in contract terms). It is important to have a working e-mail address, because we need to have means to inform the subscriber in matters concerning the network connection.
- **IT Management announces about events regarding the network** on Student Village Network homepage: <http://www.yok.fi/>. Such events include maintenance and network failures. The bulletins are available as rss-feed.
- **The connection holder is responsible for his connection.** A network device connected to the Student Village network is a part of the University network and therefore must be administered with responsibility. If a device causes trouble on the network (by using an incorrect IP address or acting as a public DHCP server) the connection will be closed temporarily. The first offence will result in the connection being closed for a week, the second a month, and the third will result in permanent expulsion. In order to avoid causing trouble, make sure that you know what you do with your computer and that you install only programs that you're ready to take responsibility for.
- **If you run into problems, you should first seek help in this booklet**, then the Student Village Networks official web pages at <http://www.yok.fi/>, by e-mail from netmaster@yok.fi, and last from the University's support telephone (help desk, 02 333 6000). The help desk does not respond to questions about the Student Village Network, all e-mail queries and queries made by phone are directed to netmaster@yok.fi. Student Village Network administrators will respond to them in due time.

University of Turku's IT Management is responsible for delivering a functioning network connection to your apartment. **IT Management does not support installing home computers, nor does it answer questions about software on home computers.** The support is strictly limited to correcting faults relating to the network connection. If you have problems with your own computer equipment, you need to seek support from a third party, like for example Citizens Computer Help (<http://www.kansalaisenmikrotuki.fi>), which is free of charge.

1 Student Village Network in General

The Student Village Network is a direct network connection available in the apartments of the Student Village Foundation. The network is administered by IT Management of the University of Turku. Network connection uses ethernet local area networking technology, so a computer with a network adapter is sufficient. There is at least one active network socket in all apartments, which has been connected to Student Village Network. The connection speed is 10/10 Mbps (Full Duplex).

You don't need an ADSL terminal or a broadband modem or cable modem.
In fact **using any kind of modem connected to the network is strictly prohibited.**

The connection is primarily meant for use supporting teaching, studying and research. Other use, though permitted, does not have such a high priority, and may be limited. Using the connection for commercial use is prohibited.

1.1 Read this before using your connection!

University of Turku's IT Management is responsible for delivering a functioning network connection to your apartment. **IT Management does not support installing home computers, nor does it answer questions about software on home computers.** The support is strictly limited to correcting faults relating to the network connection. If you have problems with your own computer equipment, you need to seek support from a third party, like for example Citizens Computer Help (<http://www.kansalaisenmikrotuki.fi>), which is free of charge.

Most problems you are likely to encounter have a solution listed in this manual. The IT Management does not have resources to help with simple problems that can be solved by merely reading this manual, and therefore **support is available only if you have already complied with the instructions in this manual.** Keep your manual handy, and if you lose it, get a new one from either University's Helpdesk, TYS office or print one from a pdf-file, available at <http://www.yok.fi/>.

This manual does not cover every possible operating system, because that would not be possible in any circumstances. If you use a system not mentioned in this manual you are on your own with regards to network settings.

PLEASE NOTE! A network device connected to the Student Village Network is a part of the University computer network, and the subscriber is responsible for making sure his connection is not used in a manner that disturbs other users. If the IT Management finds that a network device is causing trouble in the network (such as spreading viruses or participating in denial-of-service attacks), the connection gets closed either for a certain period or indefinitely. The best way to avoid this is to keep your virus protection up-to-date and not install any suspicious software.

If you have multiple computers and are building a private home network, make sure you know what you are doing before you do it. The most common reason for closing down a connection is an unauthorised DHCP server, which sends DHCP replies outside the home network and obstructs traffic from other computers in the Student Village Network. Using a router or a wireless base station is covered in chapter 3.5.

Communication between the subscribers and the network administrators is handled mainly by e-mail. Therefore it is vital that the subscriber's working e-mail address is known to the IT Management at all times. If your e-mail address changes, immediately notify the Student Village Foundation. If the IT Management notices that a subscriber's e-mail address no longer works, the connection can be closed until a new address has been reported (see contract terms, part 5).

A more complete version of the terms of the contract can be found in chapter 5.1.

1.2 About bandwidth

The student village network is intended for use of supporting studies, teaching and research. Other use, though permitted, does not have such a high priority, and may be limited. The bandwidth available in the Student Village Network is 10Mbps for each connection. This is sufficient for normal web surfing, online gaming, e-mail and moderate amounts of downloading, but massive downloads going on all the time can quickly fill the pipe in any network. Excessive bandwidth usage is disruptive to other users and can in extreme cases lead to temporary suspension of the Student Village Network connection.

1.2.1 About peer-to-peer software (BitTorrent, DirectConnect etc.)

Peer-to-peer (P2P) software is one method used to share files between personal computers on the Internet. Using P2P is not prohibited, but such a program can quickly become a bandwidth hog if used in excessive seeding of torrents. They are also one of the most common routes for viruses and malware to spread. For these reasons the use of peer-to-peer software is not recommended! If you use them, you should at least not share any of your own files so as not to create additional outgoing traffic.

2. Network security

As it was stated in the summary at the beginning of this booklet, the computer connected to the Student Village Network is part of University's network and thus should be maintained with responsibility. In order to avoid causing trouble, make sure that you know what you do with your computer and that you install only programs that you're ready to take responsibility for. Keep your operating system and software up-to-date. Be sure to use an antivirus software.

University of Turku cooperates with the Finnish national Computer Emergency Response Team (CERT-FI) and Funet CERT. In some cases IT Management might forward messages from these sources to individual users on Student Village Network. Usually this is because a threat to communications (networks, botnet zombies etc.) is detected on a user's connection. There is no need to panic if this happens, it merely indicates that the threat has been detected and caught in time. In extreme cases a connection might need to be quarantined, this however is not a punitive measure, merely a precaution to limit the threat from spreading to other devices on the network.

2.1 About firewalls

University's firewall will block attacks originating from outside Student Village Network. However it will not block any connections within Student Village Network. Therefore it is recommended to use a personal firewall on home computers. This will ensure that the network shares and services offered by user's home computer are not visible to other Student Village Network users.

IT Management does not offer support for personal firewalls, but it is recommended to obtain and install one. New Windows systems come with a firewall, which is activated by default. Usually this is adequate protection. If you want to install a firewall, you have to know what you are doing. A misconfigured firewall can shut you out of the network (e.g. by blocking the use of DHCP), or alternately interpret everything as an attack on your system. Also make sure that your computer does not have multiple firewalls running simultaneously, this will most certainly cause problems with your connectivity.

2.2 Typical problems

Most common problem caused by a user is a forbidden DHCP server, which sends false IP addresses to other users within the network. Possible causes for this problem might be that the user is trying to use Windows internet connection sharing (ICS) or has a misconfigured firewall in use. Most common reason however is a router or wireless base station, which has been connected wrong. **Routers or wireless base stations must be connected from WAN-port to the network socket** (fig. 3.2). LAN-ports are used to connect devices inside the private network (user's apartment).

Do not connect ADSL-modem to Student Village Network! Modems are for phone line use only and will not work as routers in Student Village Network.

Student Village Network uses dynamic IP addressing. Setting IP address manually or faking the network adapters MAC address is prohibited. Manual settings will cause duplicate addresses in the network. **Be sure to set your network settings to automatic.**

It is also prohibited to use network scanners, packet generators or any other software that interferes with network traffic. Users that try out hacker tools as such, will get their connection banned in a hurry.

2.3 Sanctions about abuse and misusing the network connection

If connected computer starts to misbehave in disturbing manner, or user some way causes disturbance with their actions so that it affects other subscribers network using, IT Management will temporarily shut down / ban these disturbing connections.

Shutting down temporarily simply means that, connection is closed or moved to some other network so that it wouldn't cause trouble for other subscribers. IT Management will notify the closed connections owner about the situation and the problem and states how long the connection will stay closed. Ignorance, accident or other non-intention are not mitigating circumstances. Remember that if you aren't sure about something, you can always ask.

For first offence, the temporary ban will last for one week.

For second offence, the temporary ban will last for one month.

For third offence, the network connection will be terminated permanently.

If one is directly violating the terms of Student Village Network Agreement or Finnish Telecommunication Laws, the result is without exceptions permanent termination of connection.



3 How to connect a computer to the network

A network cable is plugged between the network socket in your rooms wall and to the computer's network adapter. The cable has to be a direct-connected twisted pair cable with RJ-45 connectors. This is a "standard network cable" available from all computer and electronics stores or from the University's help desk.

You might get a modem cable with smaller RJ-11 connectors, fit for a phone socket, with your computer. RJ-11 will fit into the network socket, but no data traffic will go through it. A RJ-45 cable which may come with ADSL or broadband modem cannot be used in the Student Village Network because it commonly is cross-paired cable.



Figure 3.1: On the left is RJ-11 and on the right is RJ-45



Figure 3.2: Network socket.

You can tell whether network cable is straight or cross-paired when you put both transparent plastic connectors side by side. The small colored threads must be in same order in both connectors. If not, then you have a cross-paired cable and the connection might not work.

Modern computers using automatic network settings should work in the network immediately – only connecting the cable is needed. If the connection does not work, you should check the network adapter's and operating system's settings.

3.1 Network adapter settings

The correct settings for the network adapter are for the media-type **10base-T** (i.e. speed 10 Mbps) and for the duplex **Full Duplex**. Usually the automatic detection of settings is on by default, which is ok. If the detection fails and the adapter falls to Half Duplex, the user most likely experiences a very slow connection.

In Windows 2000, XP and Vista the settings can be changed from the Local Area Network connection's preferences (see figure 3.3, click the Configure button in the Connect using part). In Mac OS X the settings are in Built-in Ethernet's Ethernet-tab (see 3.4).

3.2 Operating system settings

The TCP/IP protocol (IPv4) is used in Student Village Network. A computer connected to the network receives its network settings automatically from University's DHCP server, as long as the computer is set to use automatic settings. Student Village Network's IP-addresses are dynamic, so manual IP-address settings are forbidden.

3.2.1 Windows

In Windows computers the configuration depends on the used version of Windows.

Windows 2000: *Start* → *Settings* → *Control Panel* → *Network and Dial-Up Connections*, select the *Local Area Network Connection* and click on *Properties*.

Windows XP: *Start* → *Control Panel* → *Network and Internet Connections* → *Network Connections*. Double-click on *Local Area Connection* and select *Properties*.

Windows Vista or 7: *Start* → *Control Panel* → from *Network and Internet* select *View network status and tasks* → *Local Area Connection: View status* → *Properties*.

Note that changes to the network settings must be made with administrator privileges.

In a window looking like figure 3.3 select *Internet Protocol TCP/IP* (in Vista: TCP/IP IPv4), and click *Properties*. The correct

settings are **Obtain an IP address automatically** and **Obtain DNS server address automatically**. After making changes you may be required to restart your computer.

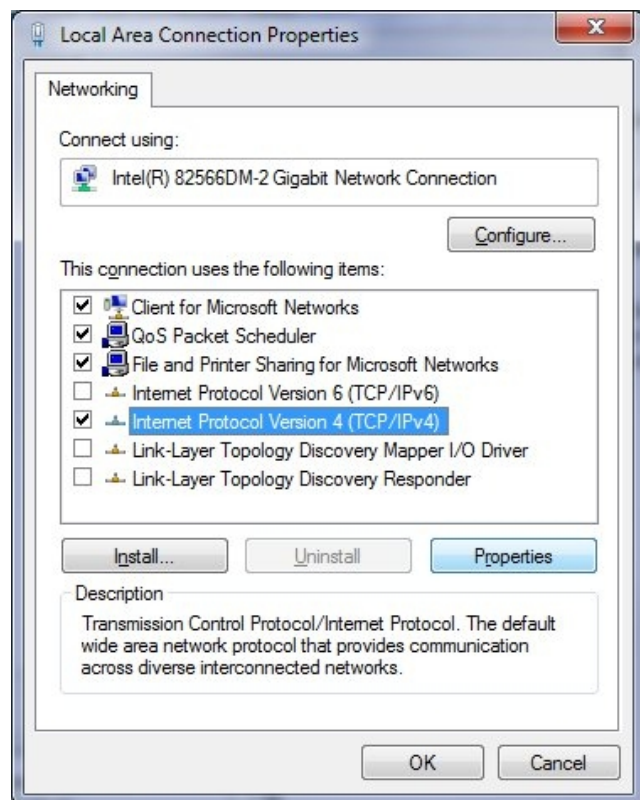


Figure 3.3: Windows Local Area Connection Properties.

3.2.2 Mac OS X

From the apple menu, select System Preferences... → Network. At Show select Built-in Ethernet. At Configure, select Using DHCP Server.

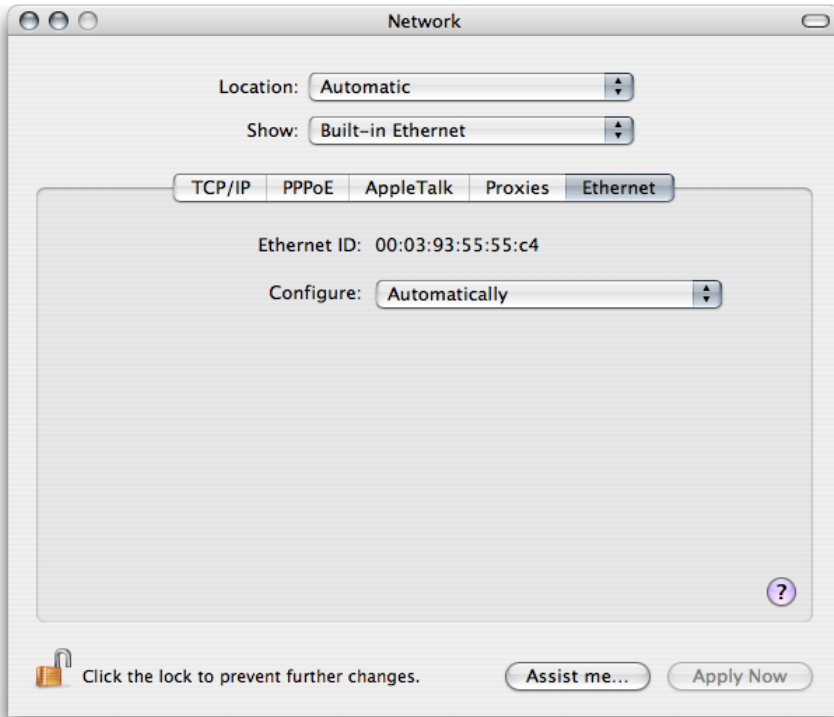



Figure 3.4: Mac OS X Network settings.

3.2.3 Ubuntu

Automatic settings are on by default in Ubuntu or can be separately chosen at installing phase of operation system. You can check that the DHCP is set to automatic from the networking settings. Right-click the networking icon  (Right-up corner on your desktop) → select *edit connections*. From the wired leaflet, choose your connection and press *edit*. A new window will pop-up (fig. 3.5). → IPv4 settings. Check that *method*: is set to *Automatic DHCP*.

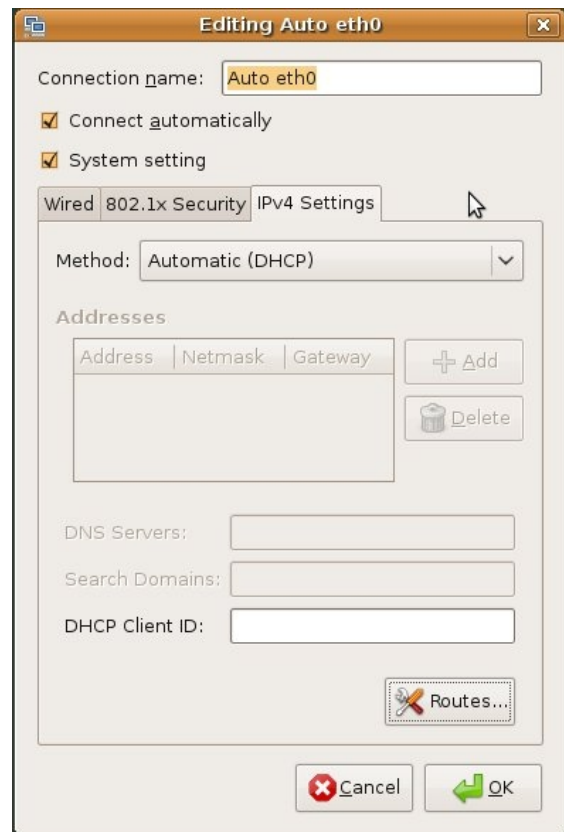


Figure 3.5: Ubuntu 8.10 DHCP settings.

3.3 WWW browser settings

Web browsers should work with default settings. No proxy server should be used in the Student Village Network and if one is configured, it might prevent Web surfing. If you have a proxy server configured, you can disable it off in Explorer by selecting Tools → Internet Options → LAN Settings and by deselecting the box Use proxy server.

3.4 E-mail settings

The outgoing mail server (SMTP server) is **smtp.utu.fi** for all Student Village Network users. Other SMTP servers can be used via authentication – port 465 (SMTPS) or 587 (STARTTLS) – but otherwise the use of other SMTP servers from within the university's network is blocked in order to prevent spam and virus mail. Apart from SMTP, e-mail programs should be set up using the settings provided by colleges or other service providers.

3.5 Connecting multiple network devices

All Student Village Foundation apartments are connected to the network with at least one active network socket by default. In bigger apartments such as family apartments, more network sockets may be active in various rooms, depending on buildings cabling. If there are multiple active sockets in the apartment, you can freely choose which ones you want to use.

You can share your network connection for multiple computers either with network switch or with router device. If you have more than five network devices, it is recommended to build your own private network with a router or a wireless base station. More detailed instructions are available on our web page: <http://www.yok.fi>

When using a router or a wireless base station, **be sure that you connect the device from WAN-port to Student Village Network socket** (fig. 3.2). LAN-ports are used to connect devices inside the private network (your apartment). Misconnected device will act as a DHCP server towards Student Village Network and gets your connection banned.

When using a wireless base station, make sure that you have secured your wireless connection (WPA encryption is preferred), so that other users in the area won't be able to use your network connection or gain access to your computer. Using an unprotected wireless connection is considered prohibited.

4 How to get help and more information

The most important up-to-date source of information about the Student Village Network is the web page <http://www.yok.fi/>. The website also has bulletins regarding any network failures or maintenance work within the network. Information on using e-mail etc. is available from your university's or service provider's manuals or Web pages.

If you get completely stuck with your connection, you can contact Student Village Networks personnel by e-mail to netmaster@yok.fi (the recommended method), or the help desk of the University of Turku by phone (02 333 6000) or by visiting (Educarium, Assistentinkatu 5, 4th floor, help desk is open on business days 8–16).

Please note that IT Management only supports Student Village Network connections, and does not help with hardware, operating system or software related issues.

IT Management has limited resources assigned for Student Village Network, so we require users to troubleshoot their connection according to instructions in this manual before contacting the IT Management. Messages like: “My Internet is broken, please fix it!”, have almost zero information value for us, so please provide as much information of the problem as you can.

Before contacting the IT Management for support, find out the following things:

- Address and apartment number.
- The network socket's ID in your apartment (this means the number/letter code of the wall socket that you use see in figure 3.2).
- Model of the router (if you are using one).
- The IP address your computer gets (see section 4.2).

Support requests without these information are ignored.

4.1 Troubleshooting the network connection

If your connection does not work, you can try to locate the problem yourself by following these instructions:

1. Are you trying to use an ADSL/broadband modem in between your network socket and your home computer? That combination doesn't work, modems tend to create rogue DHCP servers or try to act as default gateways, so disconnect your modem immediately.
2. On you computer, check if the network adapter light is on? If it is, the connection is active and the network is supposedly working already.
Go to item 4. If the light is not on, go to item 3.

3. Check from computers device management that your network adapter isn't turned off / disabled /uninstalled for some obscure reason. Enable or install drivers if needed.
4. Check the network cable. Be sure that your cable is an 8-pin RJ-45 cable and not a 4-pin RJ-11 telephone cable (fig. 3.1). The network cable needs to be unbroken without any visible faults, it shouldn't be coiled up in tight bunch and shouldn't have any bends on it.

Cross-paired network cable shouldn't be used. You can check it by disconnecting the cable and putting transparent plastic connectors side by side. The small colored threads orange, blue, green and brown must be in same order in both connectors. If not, you have cross-paired cable and it might be the cause of your troubles. If you have cross paired cable, you can acquire proper cable from University's help desk or from any computer store.

5. Try some other network cable with your computer. If it works, your original cable was probably broken. If you are sure that you network cable is not the issue, go to next item.
6. If the apartment has several network sockets, try the others as well. If none of them work, go to the next item.
7. Check that your personal firewall isn't blocking you connection. You can also try disabling it for a while and trying whether you can access the network with firewall disabled. Note, that your computer might activate Windows default firewall, when you disable your software firewall. Check them both! If you can access the network without a firewall, then there is something wrong with its settings. If disabling enabling firewall isn't making any effect, go to the next item.
8. Check from network adapters settings that "Network speed"-setting or similar is either Automatic or 10Mb/s Full Duplex. If changing settings isn't making any effect, go to the next item.
9. Check the IP address of your computer according to the instructions in section 4.2. This step will help you determine if you have the correct IP address. If you have incorrect IP address, then you should check that your network connections are automatic. If your IP is correct, but the connection is still not working, go to the next item.
10. Ask a neighbour if their network connection is working. If it is, the problem is probably with your computer or with your connection. Go to item 11. If your neighbour's computer is not working either, it's likely that there is a wider problem in the network. You should notify the help desk, tel. 02 333 6000.
11. If possible, test your computer at your neighbour's, if they have a working connection. This way you can verify whether your computer is OK. If your neighbour has a working (portable) computer connected to the network, it can also be used to test the connection in your apartment. Remember to make the test run with your own cable. This eliminates the possibility of cable causing the problem.

If you cannot get your computer working in the network with these instructions, send a service support request by e-mail to netmaster@yok.fi and explain what you have found out with the instructions. If possible, leave your computer switched on and connected to the network during daytime – it makes it easier for the Student Village Network personnel to locate the problem.

4.2 Checking your IP address

Make sure that your network settings are set to automatic. After confirming your settings, check whether your computer receives the correct IP address.

Windows

Select Start → Run (in Windows Vista enter the next command to the search field) → enter the command `cmd` (or in Windows 98: `command`) → `ipconfig /all`.

Mac OSX

Open System Preferences → Network → Show: Network Status.

Ubuntu 8.10

Choose *connection information* under networking icon. You should see your network adapters IP-address.

If your computer's IP address is:

86.50.xxx.yyy The address is correct and the connection is working. The problem probably lies with the settings of the programs you are using. Check that you have not blocked the programs in your firewall (e.g. Windows' own, F-Secure Client Security or ZoneAlarm), or that the browser is not using a proxy server, see 3.3.

If you can or know how to, check whether your computer is sending network traffic or packets but is not receiving any traffic. It is certain sign that your connection is locked up by some computers software related problem.

169.254.xxx.yyy Your computer has not received an IP address at all. Check that the cable is well connected to the adapter and network socket, and that it isn't squeezed or in a tight knot. Try renewing the IP address also, see 4.3 (disable your personal firewall if the computer has not received its IP address after installing the firewall). If your cable has been proven to work, you should contact the IT Management.

192.168.xxx.yyy, 10.xxx.yyy.zzz or 0.0.0.0 Your computer has received an IP address from an unauthorised rogue DHCP server. IT Management should deal with the rogue server in due time. Renewing the IP address might help, see 4.3.

Note! If you use a wireless base station or a router, your computer should get an IP address 192.168.xxx.yyy or 10.xxx.yyy.zzz normally from your own router. Connect your computer directly to the Student Village Network to see what address it gets from there.

4.3 Renewing the IP address

Windows

Select Start → Run (in Windows Vista enter the next command to the search field)
→ enter the command cmd (or in Windows 98: command) → enter the following commands:

```
ipconfig /release  
ipconfig /renew
```

Mac OS X

From the apple menu select System Preferences... → Network → Show: Built-in Ethernet.
Click on Renew DHCP Lease.

Ubuntu

“releasing” the IP address:

Go to terminal → enter command **sudo dhclient -r eth0**

“renewing” the IP address:

Go to terminal → enter command **sudo dhclient eth0**

5 Appendices

5.1 Terms of contract

Contract for a leased line – the Student Village Network

This is a contract specifying the conditions of service for a leased line (in the Student village network). The signer (henceforth referred to as the service user or merely 'user') agrees to abide by the terms of the contract, instructions of the IT Management, good manners and the law.

1. The rights and obligations of the service user

1.1 Administration

The user is responsible for appropriate administration and sufficient security. Selling user accounts, disk space or processor time to others is not permitted without an explicit agreement with the IT Management. The user is responsible for everything done with his connection.

1.2 Use

The connection is primarily meant for use supporting teaching, studying and research. Publishing illegal material, or material contrary to good manners either for free or for a payment is not permitted, nor is the needless taxing of the network resources. Sending chain letters or mass email to an unspecified list of recipients is explicitly forbidden. Using the service to share, publish or distribute commercial material is not permitted without an explicit agreement with the IT Management. The connection may not be used to seek out data security breaches, or for any other kind of system intrusion. The user must immediately notify the administration of the IT Management of any data security breaches he/she has noticed. Trying to obtain information on a text, image, data transfer or other similar electronic message the user has no permission to is forbidden and can lead to charges for a communications crime. The user is required to abide by all instructions and regulations issued by the IT Management concerning the use of the network services and the application of these terms. Information on these instructions is available at the IT Management homepage at <http://www.cc.utu.fi/>.

1.3 Charges for Use

The user agrees to pay for the connection and services according to the current service price chart. The user is liable for damages caused by action contrary to the terms of this contract, or otherwise intentionally or accidentally caused by the user.

2. The rights and obligations of the service provider

The University is responsible for the functionality of the Student Village Network connection. The connection means merely the user's data connection to the Student Village Network. The University is not responsible for economical losses or other damages due to technical problems, network load or service breaks caused by administrative action. The users will be notified in advance of service breaks of substantial duration required by maintenance. Any malfunctions will be handled during office hours. The service does not include correcting problems caused by hardware or software of the user. As a temporary measure, the IT Management reserves the right to without prior notice limit the use of

services causing substantial load on the network or the university computer system, or which can harm the IT Management as a service provider due to action that is contrary to law, good manners, the terms of this contract or instructions of the IT Management. In order to investigate problems relating to the use and functionality of the data connection, the University has the right to monitor network traffic going through the user's connection. The University will not, as a part of this monitoring, collect information on the contents of the network traffic.

3. Changing the terms of the contract or service prices

The University has the right to change the terms of this contract or the prices charged for the services by notifying the user. Any changes are effective at the start of the next billing period, with the exception of changes resulting from the law, official orders or other rules regulating the University as a service provider. The current rules are available at <http://www.cc.utu.fi/>

4. Terminating or otherwise ending the contract

The contract is valid until further notice, however it is not valid if the user no longer lives in an apartment with a Student Village Network connection. The University has a right to immediately terminate the contract if the user does not fill his contractual obligations or otherwise uses the services of the IT Management contrary to the terms of this contract, or the instructions or regulations of the IT Management. Both parties have the right to terminate the contract by issuing a statement to the other party at least two weeks in advance. The termination is valid in one month period after termination statement is processed .

5. Contact between the service provider and the user

The IT Management of the University will send possible invoices and information on changes in the terms of the contract and the technical notifications by email. For this purpose the user must have a working email address. If the email address stops working, the IT Management has the right to cancel the service until a new, functioning email address has been reported to the Student Village Foundation.

6. Transferring the contract

The user does not have the right to transfer the contract to a third party without the permission of the University

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5.2 Glossary

DHCP comes from Dynamic Host Configuration Protocol. In practice it means that the computer asks on start-up for its network settings from the DHCP server. In the Student Village Network the University's DHCP server gives the correct settings (IP address, subnet mask, router and name servers) based on the computers MAC address. Student Village Network uses dynamic IP addresses, so using manual IP addresses is prohibited.

IP means Internet Protocol and it is used to route data packets in the network. In the Student Village Network only the protocol's fourth version (IPv4) is used.

IP address is a four-part string of numbers, that identifies each computer connected to the Internet. In the Student Village Network the IP addresses are of form 86.50.xxx.yyy. **In the Student Village Network computers are assigned their IP address by the University's DHCP server. Manual settings are prohibited!** If you use manual IP settings, you will shut down someone else's connection and you will earn yourself a ban.

MAC address comes from Media Access Control, A.K.A Ethernet address and hardware or physical address. It is a 48-bit unique number that is usually displayed as a series of six hexadecimal pairs. The MAC address is used in Ethernet networks to identify computers.

TCP/IP is a protocol family that is used in the Internet and other networks connected to it.

Full Duplex means synchronized data transferring on upload and download. Bandwidths are independent from each other. "Both ends can talk at the same time".

NAT Network Address Translation, that allows multiple devices to share a single IP address. NAT is commonly used to create a private network within a larger network. Oh yeah! NAT saved the internet from premature extinction! IPv4 addresses are rapidly running out, but IPv6 should make it all better.